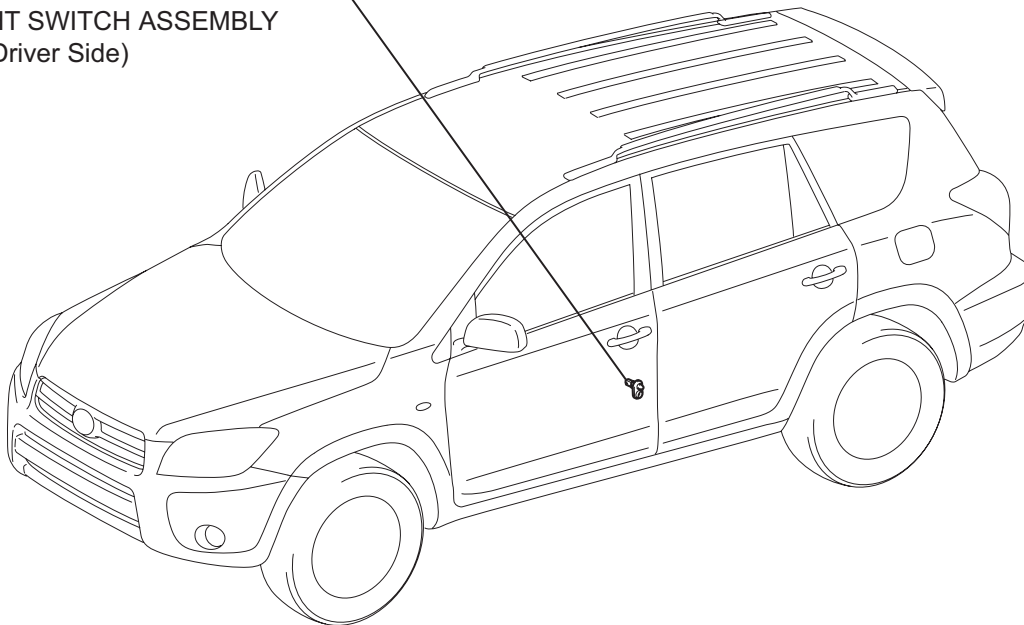


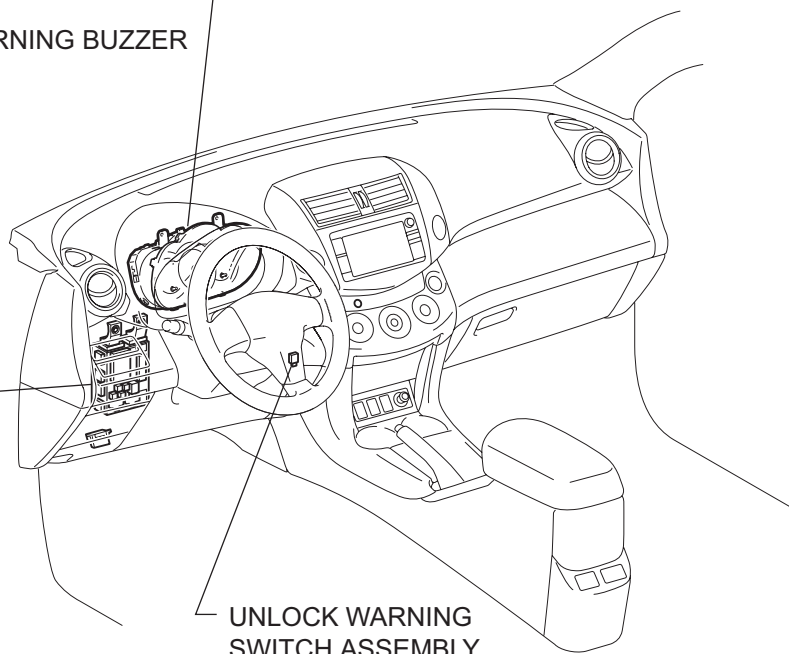
# KEY REMINDER WARNING SYSTEM

## PARTS LOCATION

FRONT DOOR COURTESY  
LIGHT SWITCH ASSEMBLY  
(for Driver Side)



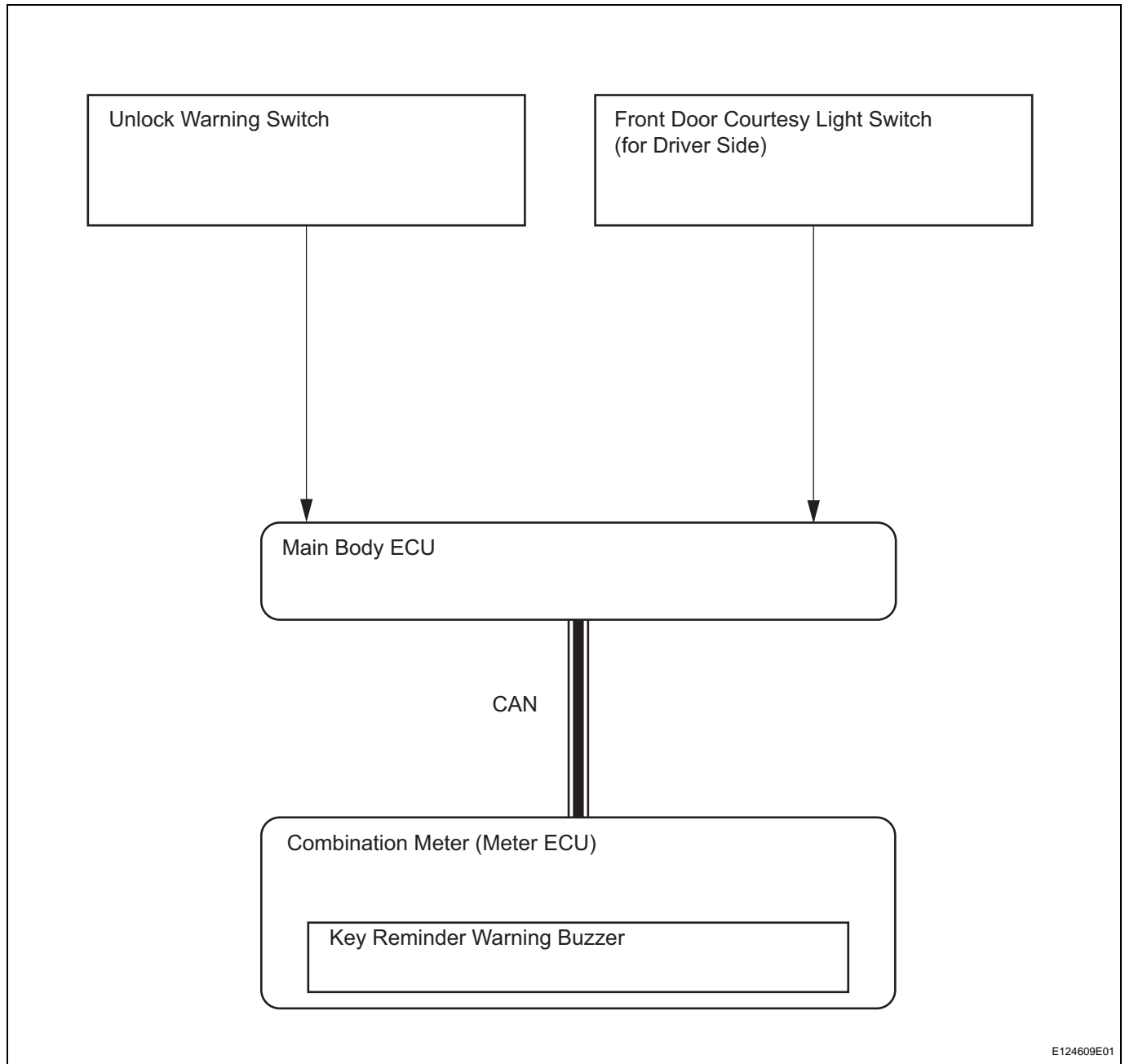
COMBINATION METER ASSEMBLY  
- METER ECU  
- KEY REMINDER WARNING BUZZER



INSTRUMENT PANEL  
JUNCTION BLOCK  
- MAIN BODY ECU

UNLOCK WARNING  
SWITCH ASSEMBLY

DL

**SYSTEM DIAGRAM**

SYSTEM DESCRIPTION

1. KEY REMINDER WARNING SYSTEM DESCRIPTION
- (a) When the driver side door is opened with the key in the ignition key cylinder and ignition switch in the ACC or OFF position, this system causes the key reminder warning buzzer to sound in order to warn the driver that the ignition key has not been removed.

2. FUNCTION OF COMPONENT

Component	Function
Front Door Courtesy Light Switch Assembly LH	Detects front door status (open or closed) and outputs signal to instrument panel junction block (main body ECU)
Unlock Warning Switch Assembly	Detects if key is inserted into ignition key cylinder or not and outputs signal to instrument panel junction block (main body ECU)
Combination Meter Assembly	Receives buzzer request signal from main body ECU after main body ECU receives ignition switch signal and front door courtesy light switch signal, and actuates inner circuit to sound built-in buzzer intermittently

## HOW TO PROCEED WITH TROUBLESHOOTING

### HINT:

- Use these procedures to troubleshoot the key reminder warning system.
- \*: Use the intelligent tester.

### 1 VEHICLE BROUGHT TO WORKSHOP

NEXT

### 2 INSPECT BATTERY VOLTAGE

**Standard voltage:**

**11 to 14 V**

### HINT:

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

### 3 INSPECT COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM\*

- (a) Use the intelligent tester to check if the CAN communication system is functioning normally.

### Result:

Result	Proceed to
DTC is not output	A
DTC is output	B

B

**GO TO CAN COMMUNICATION SYSTEM**

A

### 4 PROBLEM SYMPTOMS TABLE

### Result:

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B

**Go to step 6**

A

### 5 OVERALL ANALYSIS AND TROUBLESHOOTING\*

- (a) Operation Check (see page [DL-79](#))  
 (b) Terminals of ECU (see page [DL-80](#))

(c) DATA LIST / ACTIVE TEST (see page [DL-83](#))

NEXT

6	REPAIR OR REPLACE
---	-------------------

NEXT

7	CONFIRMATION TEST
---	-------------------

NEXT

END
-----

## OPERATION CHECK

### 1. CHECK KEY REMINDER WARNING SYSTEM

- (a) Check that the key reminder warning buzzer sounds.
  - (1) With the driver side door closed, insert the key into the ignition key cylinder and then turn the ignition switch to LOCK or ACC.
  - (2) Check that the buzzer sounds intermittently when the driver side door is open.
- (b) Check that the key reminder warning buzzer stops.
  - (1) Check that the buzzer stops sounding if any of the following operations is performed while the buzzer is sounding:
    - Close the driver side door (front door courtesy light switch is off).
    - Turn the ignition switch ON.
    - Remove the key from the ignition key cylinder.

PROBLEM SYMPTOMS TABLE

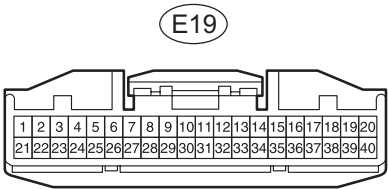
HINT:  
Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Key reminder warning system:

Symptom	Suspected Area	See page
Key reminder buzzer does not sound	1. Unlock warning switch	<a href="#">DL-84</a>
	2. Front door courtesy switch (Driver side)	<a href="#">DL-84</a>
	3. Combination meter (Key reminder warning buzzer)	<a href="#">DL-84</a>
	4. Instrument panel junction block (Main body ECU)	<a href="#">DL-84</a>
	5. Wire harness	<a href="#">DL-84</a>

TERMINALS OF ECU

1. CHECK COMBINATION METER ASSEMBLY

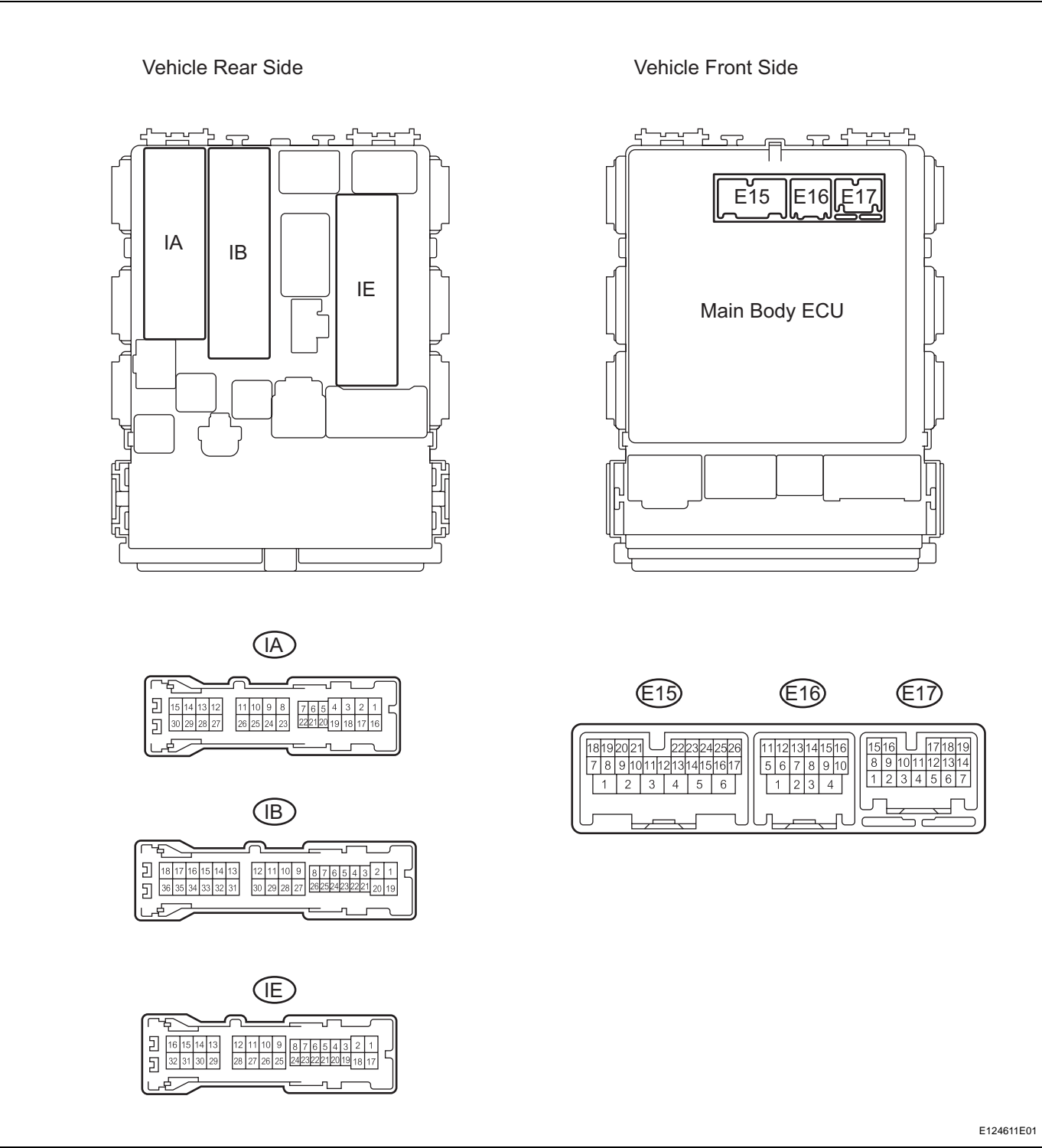


E124610E01

(a) Measure the voltage and resistance of the connector.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG+ (E19-21) - Body ground	B - Body ground	Ignition switch signal	Ignition switch OFF	Below 1 V
			Ignition switch ON	10 to 14 V
B (E19-22) - Body ground	R - Body ground	Battery	Always	10 to 14 V
CANH (E19-32) - Body ground	G - Body ground	CAN communication line	Ignition switch ON	Pulse generation
CANL (E19-31) - Body ground	W - Body ground	CAN communication line	Ignition switch ON	Pulse generation
ET (E19-33) - Body ground	BR - Body ground	Ground	Always	Below 1 Ω

2. CHECK INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)



E124611E01

(a) Measure the voltage and resistance of the connectors.

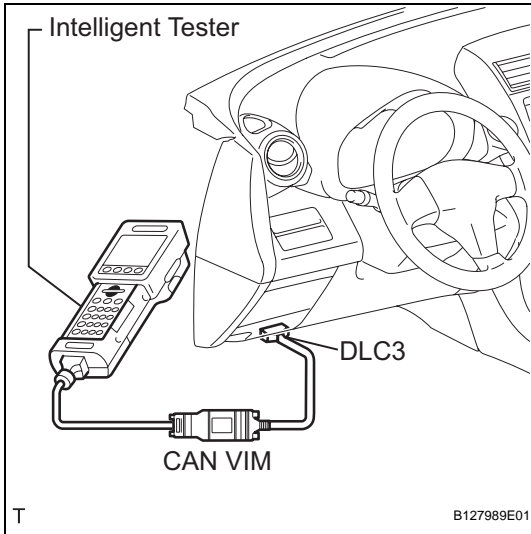
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
KSW (IE-26) - Body ground	L - Body ground	Key unlock warning switch input	Key inserted	Below 1 V
			Key removed from ignition key cylinder	10 to 14 V
GND (IE-17) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (IB-30) - Body ground	R - Body ground	Battery	Always	10 to 14 V
DTCY (IA-21) - Body ground	W - Body ground	Driver door courtesy switch input	Driver door closed	10 to 14 V
			Driver door open	Below 1 V
CANL (E17-16) - Body ground	W - Body ground	CAN communication line	Ignition switch ON	Pulse generation
CANH (E17-15) - Body ground	R - Body ground	CAN communication line	Ignition switch ON	Pulse generation

## DIAGNOSIS SYSTEM

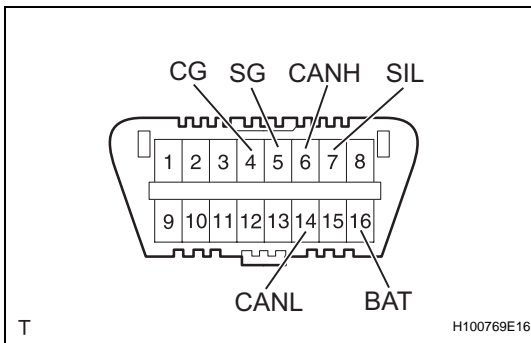
### 1. DESCRIPTION

- (a) Key reminder warning system data can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the intelligent tester (with CAN VIM) to check for malfunctions and perform repairs.



### 2. CHECK DLC3

The vehicle's ECM uses ISO 15765-4 communication protocol. The terminal arrangement of the DLC3 complies with ISO 15031-03 and matches the ISO 15765-4 format.



Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 $\Omega$
SG (5) - Body ground	Signal ground	Always	Below 1 $\Omega$
BAT (16) - Body ground	Battery positive	Always	10 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch OFF*	54 to 69 $\Omega$
CANH (6) - Battery positive	HIGH-level CAN bus line	Ignition switch OFF*	1 M $\Omega$ or higher
CANL (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF*	200 M $\Omega$ or higher
CANH (14) - Battery positive	LOW-level CAN bus line	Ignition switch OFF*	1 M $\Omega$ or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF*	200 M $\Omega$ or higher

#### NOTICE:

\*: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, other switches or doors. If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

**HINT:**

Connect the cable of the intelligent tester (with CAN VIM) to the DCL3, turn the ignition switch ON and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still not possible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.

## DATA LIST / ACTIVE TEST

### 1. READ DATA LIST

#### HINT:

Using the intelligent tester's DATA LIST allows switch, actuator and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to save time.

- (a) Connect the intelligent tester (with CAN VIM) to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Read the DATA LIST.

#### Main body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
KEY UNLOCK WARNING SW	Unlock warning switch signal / ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-
D DOOR COURTESY SW	Driver side door courtesy switch signal / ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-

## Key Reminder Buzzer does not Sound

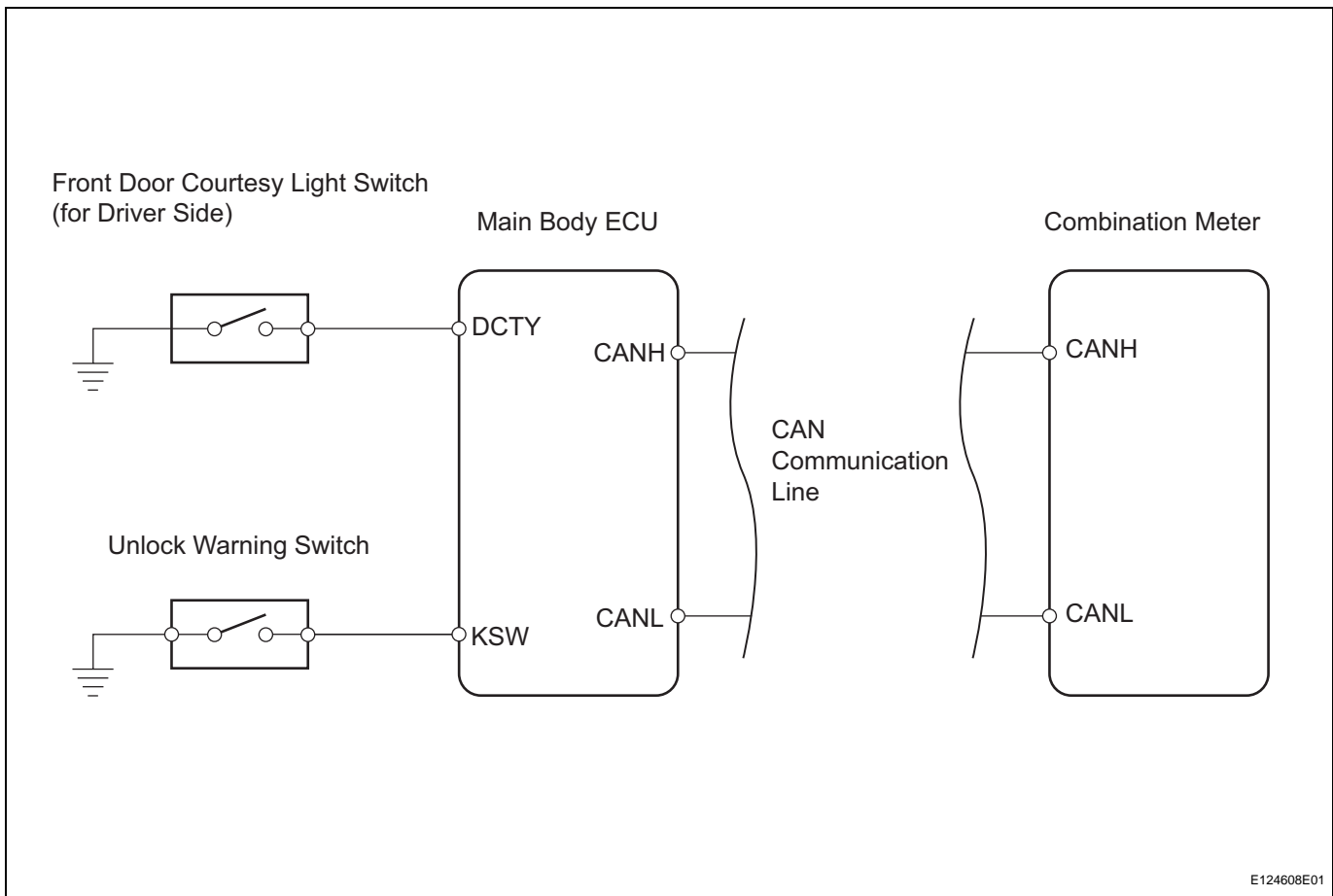
### DESCRIPTION

The key reminder warning buzzer sounds when the driver side door is opened while the ignition switch is in the LOCK or ACC positions. The key reminder warning buzzer is activated when the main body ECU sends a key switch signal and driver side courtesy switch signal to the combination meter.

#### HINT:

Since the key reminder warning system has functions that use CAN communication, first confirm that there is no malfunction in the communication system by inspecting the CAN communication functions in accordance with the "HOW TO PROCEED WITH TROUBLESHOOTING" procedures. Then, conduct the following inspection procedure.

### WIRING DIAGRAM



## DL

### INSPECTION PROCEDURE

1

#### READ VALUE USING INTELLIGENT TESTER (FRONT DOOR COURTESY LIGHT SWITCH)

- (a) Check the DATA LIST to ensure proper operation of the front door courtesy light switch.

#### Main body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
D DOOR COURTESY SW	Driver side door courtesy switch signal / ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-

OK:

"ON" (driver door is open) appears on the screen.

NG

Go to step 5

OK

2

## READ VALUE USING INTELLIGENT TESTER (UNLOCK WARNING SWITCH)

- (a) Check the DATA LIST to ensure proper operation of the door unlock warning switch.

## Main body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
KEY UNLOCK WARNING SW	Unlock warning switch signal / ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-

OK:

"ON" (key is in ignition key cylinder) appears on the screen.

OK

REPLACE COMBINATION METER ASSEMBLY

NG

3

## INSPECT UNLOCK WARNING SWITCH ASSEMBLY

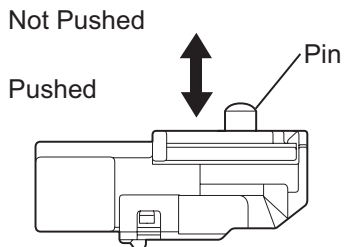
- (a) Remove the unlock warning switch.  
(b) Measure the resistance of the switch.

## Standard resistance

Tester Connection	Condition	Specified Condition
1 - 2	Not pushed	10 k $\Omega$ or higher
1 - 2	Pushed	Below 1 $\Omega$

NG

REPLACE UNLOCK WARNING SWITCH ASSEMBLY

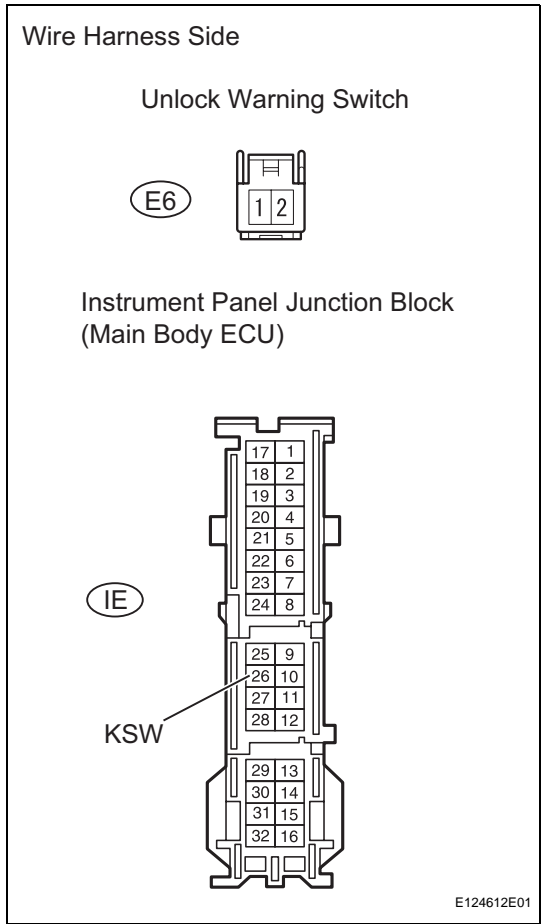


DL

OK

4

CHECK WIRE HARNESS (UNLOCK WARNING SWITCH - MAIN BODY ECU)



OK

- (a) Disconnect the E6 switch connector.
- (b) Disconnect the IE junction block connector.
- (c) Measure the resistance between the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
E6-1 - IE-26 (KSW)	Below 1 Ω
E6-2 - Body ground	Below 1 Ω

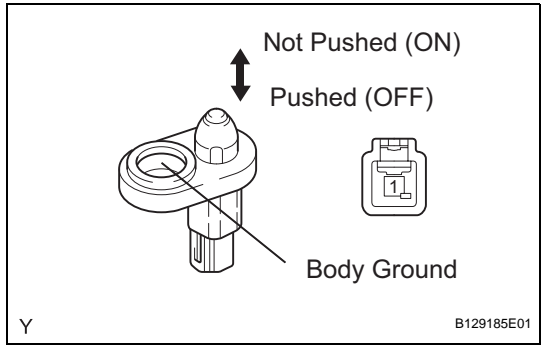
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

5

INSPECT FRONT DOOR COURTESY LIGHT SWITCH (for Driver Side)



OK

- (a) Remove the courtesy light switch.
- (b) Measure the resistance of the switch.

Standard resistance

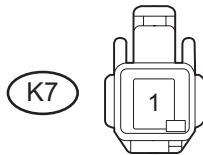
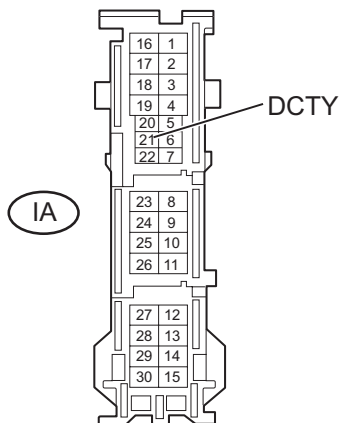
Tester Connection	Condition	Specified Condition
1 - Body ground	Not pushed (ON)	Below 1 Ω
1 - Body ground	Pushed (OFF)	10 kΩ or higher

NG

REPLACE FRONT DOOR COURTESY LIGHT SWITCH (for Driver Side)

**6****CHECK WIRE HARNESS AND CONNECTORS (FRONT DOOR COURTESY LIGHT SWITCH - MAIN BODY ECU)**

Wire Harness Side

Front Door Courtesy Light Switch  
(for Driver Side)Instrument Panel Junction Block  
(Main Body ECU)

Y

B112021E13

- (a) Disconnect the K7 connector.
- (b) Disconnect the IA junction block connector.
- (c) Measure the resistance between the wire harness side connectors.

**Standard resistance**

Tester Connection	Specified Condition
K7-1 - IA-21 (DCTY)	Below 1 $\Omega$

**NG****REPAIR OR REPLACE HARNESS AND CONNECTOR****OK****REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)****DL**